The Influence of Animated Video Media Regarding Endemic Polio Prevention Efforts on The Level Of Knowledge in Medical Faculty Students at Malikussaleh University

Noviana Zara[1], Nora Maulina[2], Dzakwan Hakim Lubis[3]

[1] FOME Department, Faculty of Medicine, Malikussaleh University
[2] Physiology Section of the Medical Study Program, Faculty of Medicine, Malikussaleh University
[3] Student of the Medical Study Program, Faculty of Medicine, Malikussaleh University

[*]*Corresponding Author : nora.maulina@unimal.ac.id*

Abstrak

Mahasiswa FK memerlukan pengetahuan yang baik mengenai polio untuk menjadikan Indonesia kembali menjadi negara bebas polio. Penelitian-penelitian terdahulu menunjukkan bahwa tingkat pengetahuan mengenai polio pada mayoritas mahasiswa FK masih belum dalam kategori baik. Edukasi kesehatan yang menarik dapat dilakukan dengan menggunakan video animasi. Video animasi memiliki kelebihan dalam menampilkan gambar serta animasi yang interaktif. Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh dari media video animasi mengenai upaya preventif endemi polio terhadap tingkat pengetahuan mahasiswa FK Unimal Kota Lhokseumawe. Penelitian menggunakan metode penelitian *quasi eksperimen* dengan rancangan *one group pre-test-posttest design* yang melibatkan 206 responden. Pengumpulan data dilakukan dengan menggunakan lembar kuesioner. Hasil dari penelitian yaitu responden perempuan lebih banyak daripada laki-laki dengan mayoritas kelompok usia remaja akhir (18-21 tahun). Hasil dari penelitian ini yaitu terdapat peningkatan pengetahuan sebesar 51,0% di kategori baik setelah intervensi dilakukan. Penggunaan video animasi memiliki pengaruh terhadap pengetahuan berdasarkan hasil dari uji *Wilcoxon* dengan p sebesar 0,000. Kesimpulan penelitian ini yaitu terdapat pengaruh media video animasi terhadap pengetahuan upaya preventif endemi polio pada mahasiswa FK Unimal Kota Lhokseumawe.

Kata Kunci: *mahasiswa; edukasi; tingkat-pengetahuan; polio; video-animasi*

Abstract

Pre-clinical students need good knowledge about polio to make Indonesia a polio-free country again. Previous studies show that the level of knowledge about polio among the majority of pre-clinical students is still not in the good category. Interesting health education can be done using animated videos. Animated videos have the advantage of displaying interactive images and animations. The aim of this research is to determine the influence of animated video media regarding efforts to prevent endemic polio on the level of knowledge of FOM Unimal Lhokseumawe City students. The research used a quasi-experimental research method with a one group pretest-posttest design involving 206 respondents. Data collection was carried out using a questionnaire sheet. The results of the research were that there were more female respondents than male respondents with the majority being in the late teenage age group (18-21 years). The results of this research were that there was an increase in knowledge of 51.0% in the good category after the intervention was carried out. The use of animated videos has an influence on knowledge based on the results of the Wilcoxon test with p of 0.000. This study concludes that there is an influence of animated video media on knowledge of endemic polio prevention efforts among FOM Unimal Lhokseumawe City students.

Keywords: college students; education; knowledge level; polio; animated videos

Introduction

Polio (Poliomyelitis) comes from the Greek words, polio (gray matter) and myelon (spinal cord). The World Health Organization (WHO) defines polio as an infectious disease caused by a contagious virus and can affect the nervous system that can cause total paralysis in a matter of hours. Poliovirus is a human enterovirus with serotypes 1, 2 or 3 with an

incubation period of usually 7–10 days (range from 4 to 35 days). Poliovirus can be transmitted through feces for several weeks after infection, even in individuals with mild or no symptoms (1,2).

The polio eradication program carried out by WHO resulted in a reduction in global incidence by 99% with Wild Poliovirus (WPV) types 2 and type 3 successfully eradicated, while WPV type 1 remains endemic in two countries, namely Afghanistan and Pakistan. Circulating Vaccine-Derived Poliovirus (cVDPV) cases are still found in various countries (1,3).

Reports of one case of polio due to VDPV type 2 on November 12 2022 were in Pidie district, Aceh Province, Indonesia. This first case of Vaccine-Derived Poliovirus (VDPV) type 2 is known to be spreading or circulating (cVDPV), namely that there are 4 positive stool specimens who live in the same village, but do not have close contact with the first case. Indonesia then declared an Extraordinary Event (KLB) in polio cases starting from November 25 2022 since the cVDPV case was reported in Aceh(4).

Research conducted by Theingi, et al (2021) shows that knowledge about polio and its prevention is still quite low among pre-clinical students. Students are the future and pillars of the nation and are the main milestone in building the nation with all its knowledge and education(5).

The animated video media was chosen because it has the advantage of being able to describe an event in detail and realistically, thus increasing the effectiveness in delivering the subject matter. Animated videos were also chosen to deliver the subject matter because the pre-clinical students have a high level of education so they can be understood well just from visually(6,7)

Methods

The type of this research is a quasi-experiment using a one group pretest posttest design which aims to determine the influence of animated video media regarding efforts to prevent endemic polio on the level of knowledge of pre-clinical students at the Faculty of Medicine, Malikussaleh University. The population of this study was 285 students and the sampling technique was total sampling. The data used is primary and secondary data originating from questionnaire sheets and a list of the number of pre-clinical student members in attendance. The research location is in the FOM Unimal building, Lhokseumawe. Data

were collected in October 2023. The Wilcoxon statistical test method was used in research data analysis.

Research Results

1. Description of Characteristics of Pre-clinical Student Knowledge Before and After Intervention

A. Respondent Characteristics

Data regarding the characteristics of respondents can be seen in the following table:

Table 1. Characteristics of Respondents based on Age, Gender and Generation

Characteristics	Frequency (n=206)	Percentage (%)
Age (Years)		
1. Late teens (18-21 years)	191	92.7
2. Early adulthood (22-30 years)	15	7.3
Gender		
1. Man	50	24.3
2. Female	156	75.7
Batch		
1. 2020	72	34.9
2. 2021	53	25.7
3. 2022	81	39.4

Table 1 displays the results from 206 total respondents. It was found that the largest age distribution of respondents was in the late teens (18-21 years) age group, namely 191 people (92.7%). Classification of results based on gender, namely that the majority of respondents were female, namely 158 people (75.7%). The classification of results is based on batch, namely that the largest number of respondents are the 2022 batch, namely 81 people (39.4%).

B. FOM Unimal Student Knowledge Pre-Test Results

Result of this *pre-test* is the total score of the questionnaire questions answered by respondents before being given intervention through animated video media.

Table 2. Distribution of Respondents' Knowledge during Pre-Test

Category	Knowledge (Pre-Test)	
	Frequency (n)	Percentage (%)
Low	52	25.2
Sufficient	149	72.3
Good	5	2.5
Total	206	100

Table 2 shows the level of knowledge of the majority of pre-clinical Unimal students before being given the intervention, namely in the sufficient category, 149 people (72.3%)

and the lowest level of knowledge among FOM Unimal students, namely in the good category, 5 people (2.5%).

Table 3. Distribution of Pre-Test Respondents' Knowledge By Age

Age	Knowledge (Pre-test)						Frequency (n=206)	Total	Percentage (%)
	Low		Sufficient		Good				
	n	%	n	%	n	%			
Late Teenagers (18-21 years)	49	23.8	137	66.5	5	2,4	191	206	92.7
Early Adulthood (22-30 years)	3	1.5	12	5.8	0	0	15		7.3

Table 3 displays the distribution of respondents' pre-test knowledge based on age, with the late teenage age group (18-21 years) being in the sufficient level of knowledge category as many as 137 people (66.5%). Respondents in the early adulthood age group (22-30 years) had a sufficient level of knowledge in the sufficient category as many as 12 people (5.8%).

Table 4. Distribution of Pre-Test Respondents' Knowledge Based on Gender

Gender	Knowledge (Pre-Test)						Frequency (n=206)	Total	Percentage (%)
	Low		Sufficient		Good				
	n	%	n	%	n	%			
Man	20	9.7	29	14	1	0.5	50	206	24.2
Woman	32	15.5	120	58.2	4	2.1	156		75.8

Table 4 displays the results of the pre-test distribution of respondents' knowledge based on gender. Female respondents had a level of knowledge in the sufficient category, which was obtained by 120 people (58.2%) and male respondents had a level of knowledge in the sufficient category, which was obtained by 29 people (14%).

Table 5. Distribution of Pre-Test Respondents' Knowledge Based on Batch

Batch	Knowledge (Pre-Test)						Frequency (n=206)	Total	Percentage (%)
	Low		Sufficient		Good				
	n	%	n	%	n	%			
2020	19	9.2	51	24.7	2	0.9	72		34.8
2021	20	9.7	32	15.5	1	0.5	53	206	25.7
2022	13	6.3	66	32	2	1,2	81		39.5

Table 5 displays the results of the pre-test distribution of respondents' knowledge based on batch. Respondents from the 2020 batch had a level of knowledge in the sufficient

category, as many as 51 people (24.7%). 32 respondents from the 2021 batch had a level of knowledge in the sufficient category (15.5%). Respondents from the 2022 batch had a level of knowledge in the sufficient category, 66 people (32%).

C. FOM Unimal students Knowledge Post-Test Results

The results of this post-test are the total score for each question contained in the questionnaire and answered by the respondent after being given intervention through animated video media.

Table 6. Distribution of Respondents' Knowledge During Post-Test

Category	Knowledge (Post-Test)	
	Frequency (n)	Percentage (%)
Low	13	6.3
Sufficient	88	42.7
Good	105	51
Total	206	100

Table 6 shows the results of the highest level of knowledge for pre-clinical Unimal students after being given the intervention, which is in the good category, numbering 105 people (51%) and the lowest level of knowledge for pre-clinical Unimal students is in the low category, numbering 13 (6.3%).

Table 7. Distribution of Post-Test Respondents' Knowledge Based on Age

Age	Knowledge (Post-test)						Frequency (n=206)	Total	Percentage (%)
	Low		Sufficient		Good				
	n	%	n	%	n	%			
Late Teenagers (18-21 years)	11	5.3	80	38.8	101	49	192	206	93.1
Early Adulthood (22-30 years)	2	1	9	4.4	3	1.5	14		6.9

Table 7 displays the results of the post-test distribution of respondents' knowledge based on age, namely the late teenage age group (18-21 years) with a good level of knowledge of 101 people (49%). Respondents in the early adulthood age group (22-30 years) had a sufficient level of knowledge, namely 9 people (4.4%).

Table 8. Distribution of Post-Test Respondents' Knowledge Based on Gender

Gender	Knowledge (Post-Test)						Frequency (n=206)	Total	Percentage (%)
	Low		Sufficient		Good				
	n	%	n	%	n	%			
Man	8	3.9	29	14.1	12	5.8	49	206	23.8
Woman	5	2,4	59	28.6	93	45.2	157		76.2

Table 8 displays the results of the post-test distribution of respondents' knowledge based on gender. The level of knowledge of female respondents was in the good category, which was obtained by 93 people (45.2%) and the level of knowledge of male respondents was in the sufficient category, which was obtained by 29 people (14.1%).

Table 9. Distribution of Post-Test Respondents' Knowledge Based on Batch

Batch	Knowledge (Post-Test)						Frequency (n=206)	Total	Percentage (%)
	Low		Sufficient		Good				
	n	%	n	%	n	%			
2020	5	2,4	33	16	35	17	73		35.4
2021	5	2,4	27	13.1	19	9.2	51	206	24.7
2022	3	1.4	29	14.1	50	24.4	82		39.9

Table 9 displays the results of the post-test distribution of respondents' knowledge based on batch. Respondents from the 2020 batch in the knowledge level with the good category were 35 people (17%). Respondents from 2021 batch had a level of knowledge in the sufficient category, namely 27 people (13.1%). 50 respondents from the 2022 batch had a level of knowledge in the good category (24.4%).

2. The relationship between student knowledge before and after intervention

The statistical test in the bivariate analysis of this research uses the Wilcoxon test, with the aim of assessing pre-clinical students' level of knowledge before and after being given intervention with the variables measured in ordinal form.

Table 10. *Wilcoxon Test* Student Knowledge Before and After Intervention

Knowledge	Category Level						Total	p value
	Low		Sufficient		Good			
	n	%	n	%	n	%		
Pre-test	52	25.2	149	72.3	5	2,4	206	**0,000**
Post-test	13	6.3	88	42.7	105	51		

Based on the test results above, it shows that there is an influence of animated video media on the level of knowledge of endemic polio prevention efforts among pre-clinical Unimal students after intervention using animated videos. This is known based on a

probability value or P value of 0.000, with the probability value of this result being smaller than the significance level of 0.05, which means H0 is rejected so Ha is accepted and proves that there is an influence between animated video media on the level of knowledge of endemic polio prevention efforts among Faculty of Medicin students Malikussaleh University.

Discussion

1. Description of Respondent Characteristics

Based on table 1, it shows that the highest age distribution of respondents is in the age group from late teens in the 18-21 year age range with 191 people (92.7%), the lowest age distribution of respondents is in the early adulthood age group with an age range of 22-30 years totaling 15 people (7.3%). Wardhani's research (2014) shows that the lower a person's age, the less information they can obtain, and vice versa, namely the higher a person's age, the more information they can obtain.(8).

Based on table 1, the distribution of the largest number of respondents was female, amounting to 156 people (75.7%). Data obtained from the 2020-2022 pre-clinical Unimal student attendance list shows that the female student population is greater than the male student population. Knowledge can also be influenced by gender. Dwi Wulandari's research (2021) shows that gender is related to the level of knowledge. Women are more motivated and more diligent in studying and working psychologically compared to men (9). The results of this study are not in line with Kevin Waldo (2021) who stated that there is no influence between the level of knowledge and gender, because if someone is still productive, educated, or experienced then they are still likely to have a high level of knowledge.(10).

Based on table 1, it shows that the majority of respondents came from the 2022 batch, namely 81 people (39.4%). The theory by Muhammad Khan (2015) explains that the higher a person's level of education, the more information they will get about diseases, clinical manifestations and various diseases that can be prevented by vaccines.(11).

Observations carried out by researchers in the field during the research found that the majority of pre-clinical Unimal students were still in their early years of education, namely

from 2022. This is closely related to the level of knowledge and understanding of respondents regarding polio and its prevention. The number of respondents obtained apparently did not have a large difference between respondents at the final year level and initial level, namely respondents at the initial year level amounted to 81 people (39.4%) and respondents at the final year level amounted to 72 people (34.9%) .

2. FOM Unimal Student Knowledge Pre-Test Results

The results of measuring the level of knowledge of pre-clinical Unimal students before being given intervention in the form of showing an animated video regarding efforts to prevent endemic polio showed results from a total of 206 samples, 149 samples in the sufficient level of knowledge category (72.3%), 52 samples in the category of low level of knowledge (25 .2%), and 5 samples in the good knowledge level category (2.5%). The results obtained from the pre-test that have been carried out show that the majority of pre-clinical Unimal students are in the category with a sufficient level of knowledge before being given the intervention from animated videos.

The results of this research are in line with previous research, namely by Masood Ali Shakh, et al (2014) regarding knowledge among students in polio, which was obtained by the majority of respondents from this study showing a sufficient level of knowledge, namely 702 people (74.2%)(12). The results of this research are not in line with research from Muhammad Umair Khan, et al (2017) which stated that the knowledge about polio among the majority of medical student respondents was in the poor category, namely 150 respondents (49%)(13). These inconsistent research results are also found in research conducted by Theingi, et al (2021) regarding pre-clinical students' knowledge of polio. The results of this research, with a total of 190 samples, showed that the majority of respondents had a level of knowledge in the low category regarding polio and its prevention, namely 151 respondents (79.5%)(8).

The results obtained from this research can be influenced by the batch level of the pre-clinical students. The results from table 5 show that the majority of the level of knowledge in the sufficient category comes from respondents 2022 batch, followed by the 2020 and 2021 batch. This can happen because the pre-clinical students of the 2022 batch are studying block 2.2 regarding disorders of the neuropsychiatric system so that the majority of their knowledge level is in sufficient category. At the time this research was conducted, pre-clinical students from 2020 batch had just completed block 4.1 regarding tropical and global infectious diseases so that the majority of respondents were in the sufficient category. Pre-clinical

students in 2021 batch have quite a lower level of knowledge than other batch because at the time of the research, they were studying block 3.2 regarding reproductive system disorders which are less related to polio virus infection.

The research results of Theingi, et al (2021) are not in line with the opinion of researchers who state that the year level of students can influence their knowledge about polio and its prevention.(8). Based on the results of this research, it is stated that the year level of pre-clinical students does not affect knowledge about polio prevention efforts, because the curriculum at the Asian Institute of Medicine, Science and Technology (AIMST) Malaysia university regarding exposure to topics about vaccine-related diseases is still not enough and lack of attention from pre-clinical students in studying polio and efforts to prevent it.

The result of this research can be caused by the respondents not yet fully understanding the polio virus, the source of its causes, the method of spreading it, and the efforts of the prevention of polio virus. This is in line with research from Muhammad Khan (2017), the results of which were $P < \alpha : 0.000 < 0.05$, which means there is a relationship between the level of pre-clinical student knowledge and efforts to prevent endemic polio. Knowledge is the main source that is important for shaping a person's actions, so the more knowledge students have, the more appropriate the preventative actions they can take(13).

3. FOM Unimal Student Knowledge Post-Test Results

The results of the post-test on the knowledge of pre-clinical Unimal students regarding endemic prevention efforts after the intervention using animated videos showed that there was an increase in knowledge about polio and its prevention efforts. This can be seen based on table 4.6 which shows that the level of pre-clinical student knowledge in efforts to prevent endemic polio after the intervention was carried out. The result was that the majority of respondents were in the good level of knowledge category, namely 105 respondents (51%). These results show that the knowledge of pre-clinical Unimal students has increased after being shown animated video media.

The results of the post-test on the level of knowledge of pre-clinical Unimal students showed that there was a change in the majority from sufficient during the pre-test to good after showing animated video media in 2020 and 2022 batch. This change could occur because the pre-clinical students of this class, when the video was shown, focused on paying attention to the vide. The results of the post-test on the level of knowledge of pre-clinical students in 2021 batch did not change, namely they remained at a sufficient level of

knowledge during the post-test. This change could not occur because when the video was shown, several students were seen doing other activities while the video was being shown.

Other research by Peter Knapp, et al (2022) is also in line with the results of this research. This research states that conducting education using animated videos is considered to be able to influence students' level of knowledge, namely an increase in knowledge in understanding the material presented and is included in the category of good level of knowledge.(14).

Quoting from Hamalik's theory (1986) in Lemi (2019) reveals that using media in learning with the aim of increasing knowledge is a very effective way to arouse interest, motivation and stimulation in learning.(15). The level of pre-clinical student knowledge changes because of the media used to deliver the material in this educational intervention. Animated videos are an effective medium to use in health education for pre-clinical students, because animated videos display animation that can attract attention so that it really stimulates the sense of sight and information can be received easily.

4. The Influence of Animation Video Media on Knowledge of Polio Endemic Preventive Efforts for FOM Unimal Students

The influence of animated video media assessed in this research is based on data from the pre-test and post-test. The results of the analysis using the Wilcoxon test showed that the P value was 0.000, so the P value was smaller than α 0.05, which concluded that there was an influence between animated videos on knowledge of endemic polio prevention efforts among pre-clinical Unimal students.

These results are in line with research from Novia Yudiasari, et al (2021) which shows that the level of knowledge of students who were given education using animated videos had a higher level of knowledge compared to the group who were not given intervention using animated videos (16). A similar thing was also expressed by Al-Khonsa Ulya Hafidzh, et al (2021) in their research which stated that after showing the animated video, there was a significant increase in student knowledge to sufficient, namely 14 people (73.70 %), which displays the respondent's level of knowledge in the sufficient category after showing the animated video(17). The use of video media was also carried out by Corine S Meppelink, et al (2018) in her research which showed animated videos about health in the intervention group with a sample of 231 people. It was found that the level of knowledge in the intervention

group increased significantly (P<0.001), thus shows that the animated video intervention influences respondents' knowledge(18).

It is important to prevent polio, considering that there are still additional new polio cases in various parts of the world. Polio cases will continue to increase in Indonesia until 2023, making it a health problem that needs to be prevented from spreading. Education on polio prevention efforts needs to be carried out on pre-clinical students, because if they have sufficient knowledge about polio, there is a big possibility that Indonesia will become a polio-free country again in the future.(8).

Health education is needed as an effort to increase knowledge of health problems, the concept of health education is a learning process so that there is a change from not knowing to knowing about health, and from not being able to change to being able to overcome health problems, either individually or in certain groups(19). Researchers in their research used educational media that can be easily understood, namely animated videos so that the health education carried out can be well understood.

According to the theory of Notoadmojo (2010), explains that human senses have different absorption capacities, the level of human absorption capacity is 82% through sight, 11% through hearing, 3.5% through touch, 2.5% through taste, and 1 % through smell(20). The researcher conducted this research based on this theory, conveying information focused on visuals using moving images (animation) and found effective results in attracting the attention of the recipient of the message.

The results obtained by researchers after the intervention was carried out were that the level of knowledge of the majority of respondents was in the good category. Respondents were also interested in the media displayed and focused when watching the animated video so that the material presented could be remembered well. Respondents also seemed to have a strong desire to expand their knowledge about polio and its prevention to find out what steps they could take to make Indonesia a polio-free country again in the future.

Conclusion

1. The age of the respondents was found to be highest in the late teens (18-21 years) age group, namely 92.7%, the majority of respondents were female, namely 75.7%, and the majority of respondents were from 2022 batch, namely 39.4%.

2. The level of knowledge among pre-clinical students regarding efforts to prevent endemic polio is in the sufficient category before education is carried out using animated video media.
3. The level of knowledge of pre-clinical students regarding efforts to prevent endemic polio is in the good category after providing education using animated video media
4. There is an influence between animated video media on knowledge of endemic polio prevention efforts among pre-clinical Unimal students.

Suggestion

1. For pre-clinical Unimal students, it is hoped that this can increase individual student knowledge regarding efforts to prevent endemic polio.
2. For relevant health agencies to more frequently carry out health education activities related to polio prevention for students to increase their knowledge.
3. For future researchers, it is hoped that this research can be used as a source of reference and comparison for further research.

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